Evaluation of a New Treatment for Tinnitus

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Background: The most current data indicates that tinnitus and hearing impairment are the Number 1 and 2 disabilities associated with service in Operations Iraqi Freedom and Enduring Freedom (OIF/OEF). Both injuries can result from exposure to blast or impulse noise from friendly- or opposing-forces weapon systems. Thus, tinnitus caused by acute acoustic trauma and traumatic brain injury (TBI) is an obstacle to be overcome in return to duty decisions and represents a serious hazard to the retention of a healthy and fit force.

Methods: This study was a between-subjects design in which the experimental group was treated with the Neuromonics *Oasis*™ tinnitus treatment device and Neuromonics' counseling protocol (n = 30 active duty personnel). The control group was treated with an iPod Touch with downloaded tinnitus applications and followed the Tinnitus Retraining Therapy Protocol (TRT) (n = 10 active duty personnel). Dependent variables for both groups were the Tinnitus Reaction Questionnaire (TRQ), the Tinnitus Handicap Inventory (THI), measures of tinnitus awareness and tinnitus disturbance, broad band minimum masking levels (BBMML), and loudness discomfort levels (LDLs).

Results: Preliminary analysis of tinnitus measures indicates that the Neuromonics' tinnitus treatment strategies were effective, showing a statistically significant reduction in the negative effects of tinnitus (i.e., reduction in TRQ, tinnitus awareness, and tinnitus disturbance between pre- and post-treatment measures). Similar results were seen with the iPod group, with statistically significant differences in pre- and post-treatment measures of TRQ and tinnitus awareness. Analysis of BBMMLs and LDLs did not indicate differences between pre- and post-treatment for either group, suggesting no change in either the amount of masking needed to blend with the participants' tinnitus or the participants' tolerance for loud sounds.

Conclusions: Both the Neuromonics tinnitus treatment and the iPod downloaded applications in conjunction with the TRT appear effective for the alleviation of debilitating tinnitus that adversely affects military operational performance and for reducing associated subjective negative effects of tinnitus on the quality of life. However, these data should be interpreted cautiously due to the small sample size and unequal groups. Furthermore, care should be taken not to draw a premature conclusion as to the permanency of the treatment effect at this time (especially with the iPod group). Future research is warranted with larger, equal sample sizes, coupled with objective pre- and post-treatment imaging studies to identify and evaluate measures of neuroplasticity.